This is a basic computer game using player input and computer randomized actions, in some cases modified by probabilities. There are three games in total Rock Paper Scissors, Tic Tac Toe, and Baseball. There are two packages containing a total of eleven classes.

The first package “Default” contains the main class “SelectGame” as well as the classes for the first two games “RockPaperScissors” and “TicTacToe,” three classes in total.

(1) SelectGame allows the user to choose which game of the three options they would like to play, it also includes the Boolean to loop the game collection after completion of any game, and a try catch method designed specifically for only allowing the user to input the specified integer limits.

(2) RockPaperScissors allows for one user to choose rock, paper, or scissors, and the computer will randomly select an option. There will be an option for the amount of games played as well, whoever wins the most games out of a series is the overall winner.

(3) TicTacToe class is a game with either two human inputs or human versus computer, Xs versus Os, basic rules of TicTacToe, it should be noted there is no computer artificial intelligence so the strategy can be somewhat lacking.

The second package contains the baseball portion of the application, this game allows a user to choose one of three teams, Detroit Tigers, Washington Nationals, and Boston Red Sox, each team has unique batters and pitchers including their real-life ERA and BA, these numbers are used to determine the likelihood of various events in the game (base hits, home runs, pitching abilities). Player chooses a team, computer randomly selects a team, the player chooses amount of innings, player will choose pitching or batting options based on which half of inning, computer will do whichever is opposite them using randomization. The likelihood of all events has a basis in the realistic batting averages and ERA. Quality of batter/pitcher affects likelihood of event. This package operates properly with eight classes: (1) Baseball, (2) Players, (3) Batters, (4) Pitchers, (5) BaseballInputs, (6) TypesOfPitches, (7) BaseballEvents, (8) Bases.

(1) The Baseball class is the “main” baseball class, it creates player and pitcher objects and puts them in arrays, this is what forms the teams. Two classes are referenced by Baseball and looped while the user is playing the game, they handle getting user input and causing events (turning it into gameplay), those classes are (5) BaseballEvents, (6) BaseballInput. Baseball class also prints results of interaction between batter and pitcher to the user, this would be the bulk of what they see. The player is also able to choose the number of innings that they can play, anywhere between 1-9. At the end of the innings (amount established previously by user), this class an “end game” method is referenced and determines the winner (based on score), it will add an extra inning to prevent the game ending in a tie, there must always be a clear winner and loser. Baseball class has all of the individual player characteristics on a programming level.

(2-4) Players, Batters, and Pitchers are all constructor classes, the Batters and Pitchers classes are both subclasses of the Players class. The Players class holds the attributes for names of the players. Batters and Pitchers classes hold the unique statistics (ERA, BA), and inherits the name attribute from the players class. (Actual players involved in gameplay were determined in the initial steps of the baseball class when the player selects their team.)

(5) BaseballInputs class gains input from the user as well as the computer (randomized) this input determines both position of the batter swing as well as the location of the pitch over “homeplate” within the “strikezone.” There are nine locations a batter can choose from, there three types of pitches (fastball, curveball, change-up). The ERA, BA, location of swing, and type of pitch all combine for the probability of which event (base hit, out, homerun, strike).

(6) TypesOfPitches class determines where in strike zone the ball will land, as well as creates the three types of pitches that the user can choose (or the computer can randomly select).

(7) BaseballEvents class is where the processes for all events that can occur within the game on either the player or computer side.

(8) Bases class also a constructor class, that holds all four bases, this class contains which player is on which base, and makes sure that there is only one player or no players on a base.